FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 12 to February 18, 2012 (Week 07)

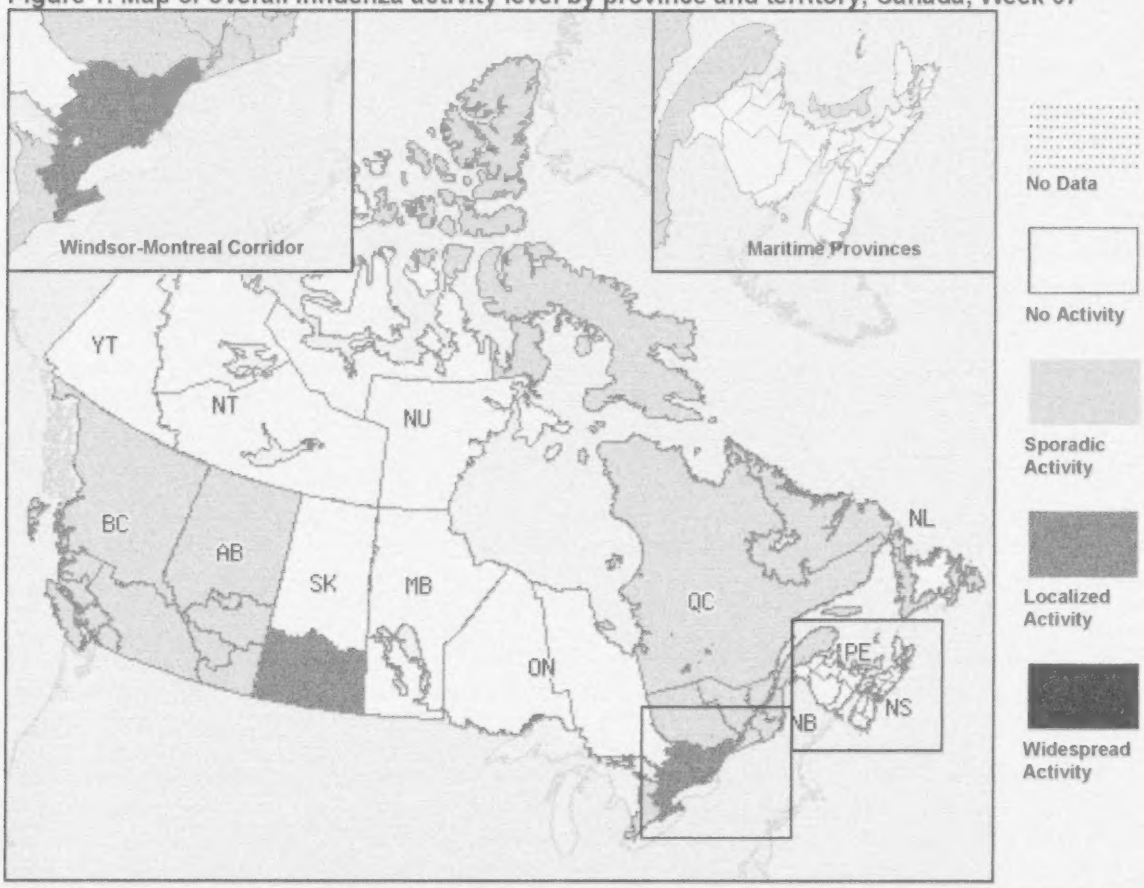
Overall Influenza Summary

- Influenza activity in Canada in week 07 is similar to the previous week; activity remains low in the Territories and in a few other regions across the country
- Six regions reported localized influenza activity and 22 regions reported sporadic influenza activity
- Nine outbreaks of influenza were reported this week (4 in LTCFs, 3 in schools and 2 others)
- In week 07, 378 laboratory detections of influenza were reported (21% A/H3, 10% A(H1N1)pdm09, 28% A unsubtyped and 42% B)
- The percent positive for influenza B detections continues to increase over the past several weeks with some provinces having detected more influenza B viruses than influenza A viruses in week 07 (i.e. Ontario and some Atlantic provinces)
- Thirty-three influenza-associated hospitalizations were reported this week (11 paediatric and 22 adult)
- The national ILI consultation rate increased this week compared to the previous week and remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

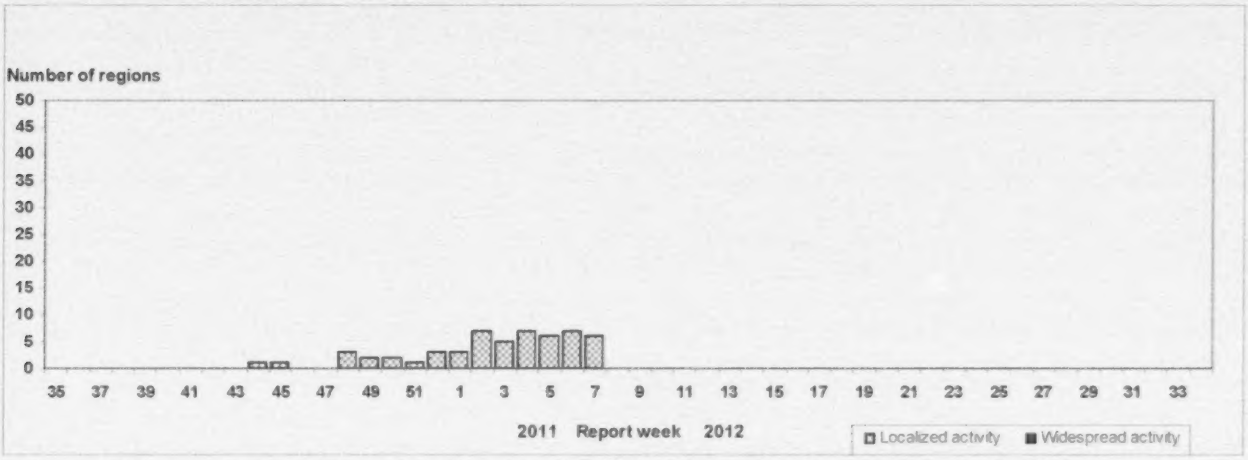
In week 07, six surveillance regions (within SK & ON) reported localized activity and 22 regions (within BC, AB, ON, QC, NL, PEI, & NU) reported sporadic influenza activity (see Figure 1). Nine outbreaks of influenza were reported this week: 4 in long-term care facilities (3 in ON & 1 in SK), 3 in schools (in SK) and 2 others (in ON) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 07



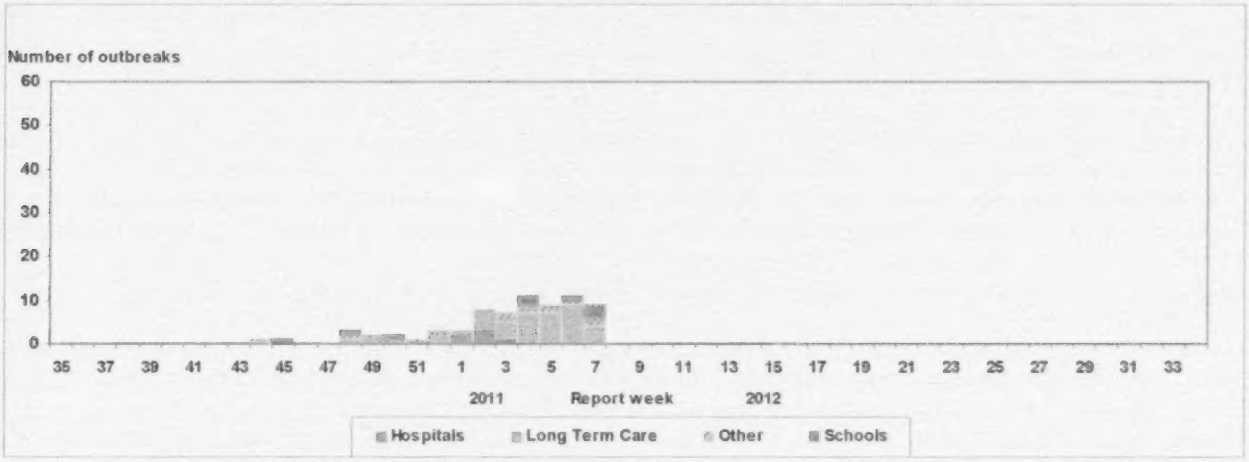
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to increase and was 10.5% (378/3,470) for week 07 (Figure 4 & 5). Of the 378 positive influenza detections this week, 220 (58%) were positive for influenza A and 158 (42%) were positive for influenza B. To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: ON, QC & the Atlantic provinces.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 69.6% influenza A (60.2% - A(H3); 14.2% - A(H1N1)pdm09; 25.6% - unsubtyped) and 30.4% influenza B (Table 1).

Detailed information on age and type/subtype were received on 1,556 cases to date this season (Table 2). The proportions of cases by age group are as follows: 21.6% were < 5 years; 14.5% were between 5-19 years; 24.7% were between 20-44 years; 15.0% were between 45-64 years of age; 24.2% were >= 65 years; and 0.1% with age unknown.

In week 07, the proportion of tests positive for RSV declined to 16.6% (and has fluctuated between 17-19% since week 01) and remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV this week were reported in ON, QC and the Atlantic Region. Except for the percent positive for hMPV (6.2%) and rhinovirus (6.3%) which increased compared to the previous week, the proportion of positive tests for the other respiratory viruses declined slightly from the previous week (parainfluenza-1.6%; adenovirus-2.0%; coronavirus-6.0%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	February 12 to February 18, 2012						Cumulative (August 28, 2011 to February 18, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	23	0	19	3	1	4	296	0	276	16	4	27
AB	39	0	25	3	11	3	281	0	249	14	18	24
SK	38	0	28	2	8	0	184	0	147	10	27	1
MB	NA	NA	NA	NA	NA	NA	9	0	4	0	5	2
ON	33	0	6	21	6	88	204	0	60	115	29	269
QC	86	0	1	8	77	55	259	0	7	21	231	163
NB	0	0	0	0	0	0	2	0	1	0	1	4
NS	0	0	0	0	0	0	0	0	0	0	0	1
PE	0	0	0	0	0	2	0	0	0	0	0	3
NL	1	0	0	0	1	6	3	0	1	0	2	46
Canada	**220**	**0**	**79**	**37**	**104**	**158**	**1238**	**0**	**745**	**176**	**317**	**540**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Feb. 12 to Feb. 18, 2012)					Cumulative (Aug. 28, 2011 to Feb.18, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	21	2	6	13	13	212	42	115	55	124
5-19	19	0	10	9	31	132	10	102	20	93
20-44	53	7	15	31	12	307	30	178	99	77
45-64	23	5	6	12	5	195	30	105	60	38
65+	23	2	17	4	11	301	17	239	45	75
Unknown	0	0	0	0	0	2	1	1	0	0
Total	139	16	54	69	72	1149	130	740	279	407

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

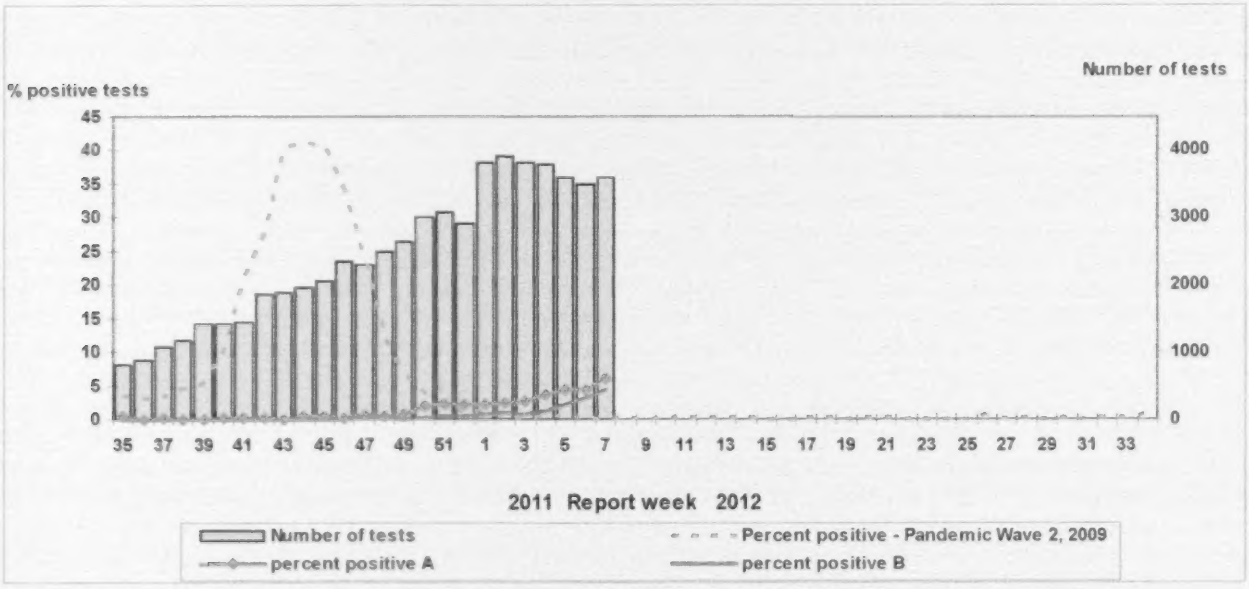
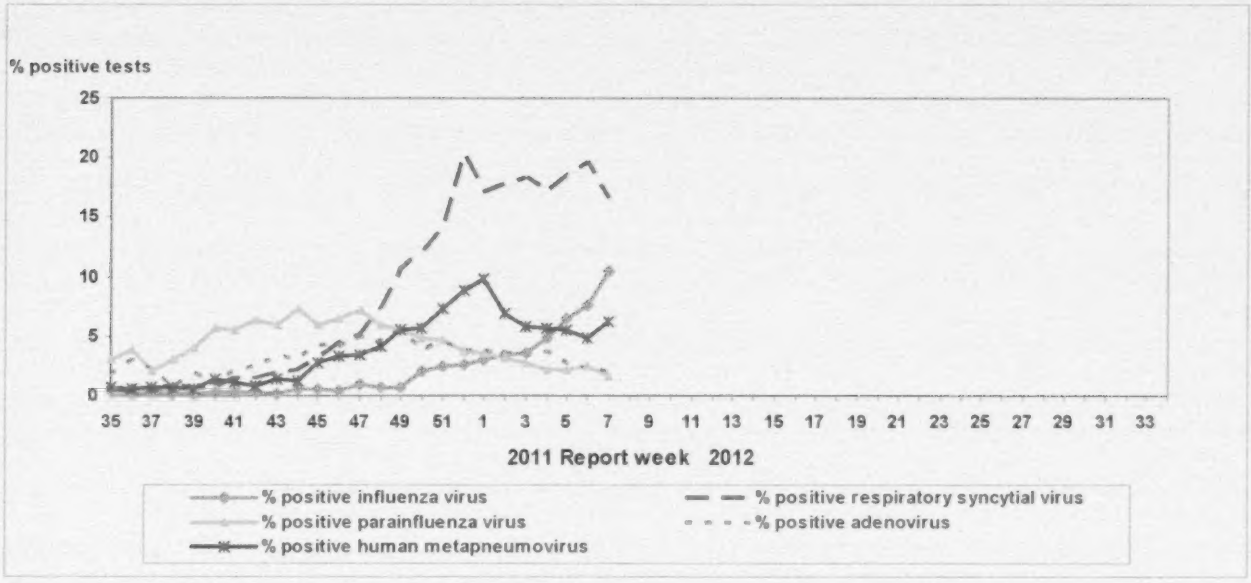


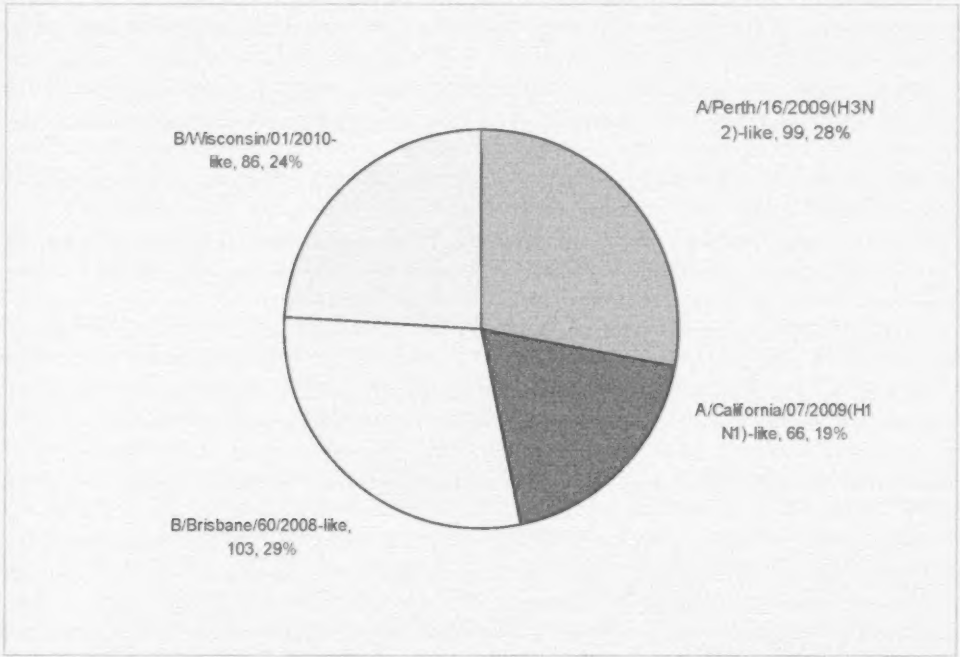
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012


% positive tests
25
20
15
10
5
0
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2011 Report week 2012
% positive influenza virus
% positive parainfluenza virus
% positive human metapneumovirus
% positive respiratory syncytial virus
% positive adenovirus

Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 354 influenza viruses (99 A/H3N2, 66 A/H1N1 and 189 B). All 99 A/H3N2 viruses (from BC, AB, SK, ON & QC) are antigenically related to A/Perth/16/2009. All 66 A/H1N1 viruses (from BC, AB, SK, ON & QC) are antigenically related to A/California/07/2009. Of the 189 influenza B viruses characterized, 103 (54%) (from BC, AB, SK, ON, QC, NB & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The remaining 86 (46%) influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 354



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 279 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 238 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 188 influenza A viruses (121 H3N2 and 67 H1N1) were tested for amantadine resistance; all but one influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

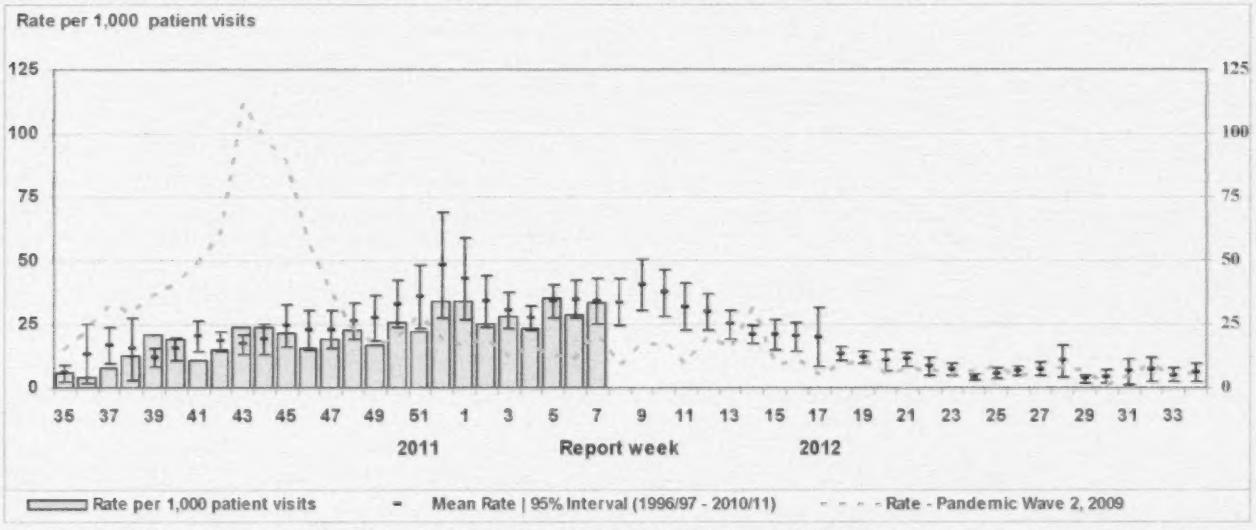
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	94	0	79	0	121	120 (99.2%)
A (H1N1)	58	0	50	0	67	67 (100%)
B	127	0	109	0	NA*	NA*
TOTAL	279	0	238	0	188	187 (99.5%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased to 33.5 ILI consultations per 1,000 patient visits in week 07 but still remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (64.2/1,000 visits) and in those 5 to 19 years old (47.8/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 07, 11 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Four hospitalizations were due to influenza A (unsubtyped) (in BC, AB, ON & QC) and seven were due to influenza B (in BC, AB, ON & QC).

To date this season, 83 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, & NL); 47 (56.6%) were due to influenza A and 36 (43.4%) were due to influenza B. The proportion of cases by age group is as follows: 16.9% among infants <6 months of age; 18.1% among children 6-23 months of age; 36.1% were between 2-4 years; 16.9% were between 5-9 years; and 12.0% were between 10-16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Adult Influenza Hospitalizations and Deaths

In week 07, 22 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 15 in ON, 6 in AB and 1 in NL. In addition, of the 6 hospitalizations reported in AB, 3 required admission to ICU; 2 with influenza A(H1N1)pdm09 infection and 1 with influenza A(H3N2) infection.

To date this season, 131 influenza-associated adult hospitalizations have been reported from five provinces (AB, SK, MB, ON & NL). The proportion of cases by age group is as follows: 24.4% were in those 17-44 years of age; 26.7% were in those 45-64 years of age and 48.9% were in those ≥ 65 years. In addition, 5 adult influenza-associated deaths have been reported to date this season (4 in ON & 1 in MB); all had influenza B infection and all were ≥ 65 years old.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since February 17, 2012.
World Health Organization influenza update

Recommended composition of influenza virus vaccines for use in the 2012-2013 northern hemisphere influenza season

The WHO recommends that the vaccines for use in the 2012-2013 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Victoria/361/2011 (H3N2)-like virus; and a B/Wisconsin/1/2010-like virus.

United States: In week 6, the CDC reported that 15.5% (500/3,230) of influenza tests were positive. Since October 1, 2011, the CDC characterized 369 influenza viruses: 58 A/H1N1, 263 A/H3N2 and 48 B. Fifty-six (96.6%) of the A/H1N1 viruses were characterized as A/California/7/2009-like and 2 (3.4%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 263 influenza A/H3N2 viruses that were characterized, 257 (97.7%) were A/Perth/16/2009-like and 6 (2.3%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 48 influenza B viruses that were characterized, 22 (45.8%) were B/Brisbane/60/2008-like (B/Victoria lineage) and 26 (54.2%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.9%, which is below the national baseline. Widespread influenza activity was reported in 1 state (California), 12 states reported regional influenza activity, 17 states reported localized influenza activity, while the rest reported either sporadic or no activity. One influenza-associated pediatric death was reported to CDC during week 6 and was associated with influenza B virus.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 7, influenza activity continues to increase in most of the countries in the WHO European Region. Consultation rates for ILI and acute respiratory infection (ARI) are increasing in 27 out of 42 countries; and similar to previous weeks, consultation rate were highest in young children. Approximately 46% of sentinel ILI/ARI samples tested positive for influenza of which 91% were for influenza A and 9% for influenza B. Circulation of influenza A(H3N2)virus is still prevalent, with some A(H1N1)pdm09 and influenza B detections reported. Since week 40, 218 influenza viruses have been characterized antigenically: 3 were A/California/7/2009 (H1N1)-like; 195 were A/Perth/16/2009 (H3N2)-like; 4 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 8 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 8 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

The WHO reported three new cases of human A/H5N1 avian influenza infection. The first case was in a 19 year-old female from Indonesia who developed symptoms on February 8, 2012, was hospitalized on February 12 and died on February 13. The other two cases were from Egypt – a 45 year-old female from Menofia governorate and a 1 year-old female from Gharbeia governorate. Both cases received oseltamivir treatment. The 45 year-old is recovering and the 1 year-old is in good medical condition.
WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.